

We Claim:

1. A system for designing a device to be fabricated through a manufacturing process, the device including a plurality of components, the system comprising:

5           a system-level design and simulation environment for receiving information about the components, for preparing a system-level schematic of the device that connects the components and for running a circuit simulation of the device based on the schematic;

          an external location for holding process data, said process data including a process specification and collection of material properties data for said manufacturing process, said

10       external location being external to said system-level design and simulation environment; and

          a process specification tool for retrieving the process data and communicating with the system-level design and simulation environment to provide the process data to the system-level design and simulation environment.

15       2. The system of claim 1 wherein the device is a MEMS (Micro-Electrical Mechanical System) device.

3. The system of claim 1 wherein said system-level design and simulation environment is a circuit design and simulation environment

20       4. A system for designing a device to be fabricated through a manufacturing process, the device including a plurality of components, the system comprising:

          a system-level design and simulation environment for receiving information about the components, for preparing a signal flow diagram of the device that connects the components  
25       and for running a signal flow simulation of the device based on the signal flow diagram;

          an external location for holding process data, said process data including a process specification and collection of material properties data for said manufacturing process, said external location being external to said system-level design and simulation environment; and

30       a process specification tool for retrieving the process data and communicating with the system-level design and simulation environment to provide the process data to the system-level design and simulation environment.

5. The system of claim 4 wherein the device is a MEMS (Micro-Electrical Mechanical System) device.

6. In an electronic device holding a system-level design and simulation environment for designing a device to be fabricated through a manufacturing process, said system-level design and simulation environment interfaced with at least one schematic that includes multiple components and a location holding process data external to said environment, each said component including a component model, said component model being a mathematical description of component behavior, a method, comprising:

providing a process specification tool for retrieving the process data and communicating said process data to said system-level design and simulation environment; and integrating said process specification tool with the system level design and simulation environment to programmatically alter the components of said schematic based on changes in said process data.

7. The method of claim 6 wherein said process data includes a process specification, said process specification listing the steps of a manufacturing process for said device to be fabricated.

8. The method of claim 6 wherein said process data includes material properties for said manufacturing process.

9. The method of claim 6, further comprising:

retrieving said process data with said process specification tool;

providing the retrieved process data to said system-level design and simulation environment; and

using said process data and said schematic in a simulation.

10. The method of claim 9, further comprising:

altering said process data, said alteration being reflected in the components of said schematic as a result of the integration of said process specification tool; and

re-running said simulation using said altered data.

11. The method of claim 10 wherein the process data being altered is a process specification.

12. The method of claim 10 wherein the process data being altered is a collection of material properties data.

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13. The method of claim 6 wherein said system-level design and simulation environment includes a schematic editor.

10 14. The method of claim 6, wherein said process data includes a process specification and a collection of material properties data and further comprising:

providing with said process specification tool a user interface for a user to enable the user to specify a name of said schematic, a name of a collection of material properties data, and a name of a process specification, said names referencing a storage location holding data for the schematic, a storage location holding the materials properties data and a storage

15 location holding the process specification data respectively; and

receiving a user-selection of the name of the schematic, a collection of material properties data and the name of a process specification via said user interface.

15. The method of claim 14, further comprising:

20 running a first simulation based upon the user selections received via said user interface;

receiving an altered selection of at least one of a name of said collection of materials properties data and name of a process specification via said user interface;

associating said schematic components with data referred to by said altered selection;

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running a second simulation based upon the at least one altered user selection received via said user interface.

16. The method of claim 14, further comprising:

30 receiving an altered selection of the name of said schematic, the altered name of the schematic thereby becoming programmatically associated with the material properties data and the process specification data selected by the user.

17. The method of claim 6 wherein said process data programmatically supplies parameters to said component models.

18. The method of claim 6 wherein said system-level design and simulation environment is used to design and simulate a MEMS (Micro-Electrical Mechanical System) device.

19. The method of claim 6 wherein said system-level design and simulation environment is used to design and simulate a micro-fabricated device.

20. A storage medium in an electronic device holding a system-level design and simulation environment for designing a device to be fabricated through a manufacturing process, said system-level design and simulation environment interfaced with at least one schematic that includes multiple components and a location holding process data external to said environment, said medium holding executable steps for a method, said method comprising:  
providing a process specification tool for retrieving the process data and communicating said process data to said system-level design and simulation environment; and integrating said process specification tool with the system level design and simulation environment, said integration programmatically altering the components of said schematic based on changes in said process data.

21. The medium of claim 20 wherein said process data includes a process specification, said process specification listing the steps of a manufacturing process for said device to be fabricated.

22. The medium of claim 20 wherein said process data includes material properties for said manufacturing process.

23. The medium of claim 20 wherein said method further comprises:

retrieving said process data with said process specification tool;  
providing the retrieved process data to said system-level design and simulation environment; and  
using said process data and said schematic in a simulation.

24. The medium of claim 23 wherein said method further comprises:

altering said process data, said alteration being reflected in said schematic as a result of the integration of said process specification tool; and

re-running said simulation using said altered data.

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25. The medium of claim 24 wherein the process data being altered is the process specification.

26. The medium of claim 24 wherein the process data being altered is the collection of material properties data.

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27. The medium of claim 20 wherein said method further comprises:

providing with said process specification tool a user interface for a user to enable the user to specify a name of said schematic, a name of a collection of material properties data,

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and a name of a process specification, said names referencing a storage location holding data for the schematic, a storage location for the materials properties data and a storage location for the process specification data respectively; and

receiving a user-selection of the name of the schematic, a collection of material properties data and the name of a process specification via said user interface.

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28. The medium of claim 27 wherein said method further comprises:

running a first simulation based upon the data referenced by the user selections received via said user interface;

receiving an altered selection of at least one of the name of said collection of materials properties data and the name of said process specification via said user interface;

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associating said schematic components with data referred to by said altered selection; and

running a second simulation based upon the at least one altered user selection received via said user interface.

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29. The medium of claim 28 wherein said method further comprises:

receiving an altered selection of the name of said schematic, the altered name of the schematic thereby becoming programmatically associated with the material properties data  
5 and the process specification data selected by the user.

30. The medium of claim 20 wherein said process data programmatically supplies parameters to said component models.

10 31. The medium of claim 20 wherein said system-level design and simulation environment is used to design and simulate a MEMS (Micro-Electrical Mechanical System) device.

32. The medium of claim 20 wherein said system-level design and simulation environment is used to design and simulate a micro-fabricated device.

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33. A system for designing a device to be fabricated through a manufacturing process, the device including a plurality of components, the system comprising:

a system-level design and simulation environment for receiving information about the components, for preparing a system-level schematic of the device that connects the

20 components and for running a system-level simulation of the device based on the schematic;

an external location for holding process data, said process data including a collection of material properties data for said process, said external location being external to said system-level design and simulation environment; and

25 a process specification tool for retrieving the process data and communicating with the system-level design and simulation environment to provide the process data to the system-level design and simulation environment.

34. The system of claim 33 wherein the device is a MEMS (Micro-Electrical Mechanical System) device.

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35. A storage medium in an electronic device holding a system-level design and simulation environment for designing a device to be fabricated through a manufacturing process, said system-level design and simulation environment interfaced with at least one signal flow diagram that includes multiple components and a location holding process data external to said environment, said medium holding executable steps for a method, said method comprising:

providing a process specification tool for retrieving the process data and communicating said process data to said system-level design and simulation environment; and integrating said process specification tool with the system level design and simulation environment, said integration programmatically altering the components of said signal flow diagram based on changes in said process data.

36. The medium of claim 35 wherein said method further comprises:

retrieving said process data with said process specification tool;  
providing the retrieved process data to said system-level design and simulation environment; and  
using said process data and said schematic in a signal flow simulation.